

IMPACTS OF DISTURBANCE ON FISH COMMUNITIES
IN SUNGAI RUP, TERENGGANU

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**IMPACTS OF DISTURBANCE ON FISH
COMMUNITIES IN SUNGAI PUR,
TERENGGANU**

By
Annie Nunis Anak Billy

A thesis submitted in partial fulfillment of
the requirements for the award of the degree of Bachelor of Applied Science in
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**JABATAN SAINS BIOLOGI
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Adalah ini diakui dan disahkan bahawa laporan penyelidikan bertajuk: **IMPACTS OF DISTURBANCE ON FISH COMMUNITIES IN SUNGAI PUR, TERENGGANU** oleh **ANNIE NUNIS ANAK BILLY**, no. matrik: **UK11806** telah diperiksa dan semua pembetulan yang disarankan telah dilakukan. Laporan ini dikemukakan kepada Jabatan Sains Biologi sebagai memenuhi sebahagian daripada keperluan memperoleh ijazah **SARJANA MUDA SAINS GUNAAN (PEMULIHARAAN DAN PENGURUSAN BIODIVERSITI)**., Fakulti Sains dan Teknologi, Universiti Malaysia Terengganu.

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DECLARATION

I hereby declare that this thesis entitled “Impacts of Disturbance on Fish Communities in Sungai Pur, Terengganu” is the result of my own research except as cited in the references.

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ABSTRACT

There are a few experimental studies regarding the response of stream fish towards human-induced disturbance conducted in the past; with studies often addressed the effects of disturbance and fish assemblages resiliency over long time interval. This study aim to investigate the effects of human-induced disturbance by electrofishing towards the abundance of fish species and the ability of the fish assemblages to bounce back to its original pre-disturbance species composition. Study was conducted at Sg. Pur, Kuala Berang in Hulu Terengganu District, Terengganu. Four stations, Station A, Station B, Station C and Station D was set up at the area. Each station then divided into two substation, 1 and 2. The first sampling was considered as the pre-disturbance model and sampling was performed in all the substations. The second sampling was considered as two months post disturbance period with sampling only carried out in substation A2, B2, C2 and D2. The last sampling was the four months post disturbance period and sampling was performed in substations A1, B1, C1 and D1. The result demonstrated that the first sampling was the sampling occasions with the most number of fish and their species captured while the second sampling vice versa. The five most abundant species were *Rasbora sp.*, *Rasbora notura*, *Nemacheilus selangoricus*, *Systemus banksi* and *Osteochilus waandersii*. The abundance of fish assemblages was greatly reduced after the disturbance as demonstrated by the number of fish captured during two months post disturbance period. However, after four months, the abundance of fish assemblages and the amount of species present at the substations were increased. Similarity Index indicated similarity between first sampling and second sampling, first sampling and third sampling and high similarity between second sampling and third sampling. It was discovered that all five of the most abundant species came from the same family, Cyprinidae. The major characteristic of this family is it is highly mobile, thus facilitate recolonization. The seasonal variation during sampling occasions also proved to influence the number of fish captured. High similarity between sampling occasions show that recovery of species composition occurred within a short time which was less than two months. It is hope that this study facilitates other researchers to predict the effects of human-induced disturbance towards species abundance and the fish assemblages' recovery in short term accurately, thus, assists in the conservation efforts not only for fish assemblages but also stream itself as a whole.

ABSTRAK

Kajian mengenai kesan gangguan antropogenik terhadap ikan amat jarang dilakukan di mana kajian selalunya lebih menjurus ke arah kesan jangka panjang gangguan antropogenik and ketahanan ikan terhadap gangguan tersebut. Tujuan utama kajian ini adalah untuk mengkaji kesan gangguan antropogenik dengan melakukan “electrofishing” terhadap populasi ikan dan juga mengkaji kebolehan ikan untuk kembali ke komposisi spesis asal sebelum berlakunya gangguan. Kajian dilakukan di Sg. Pur, Kuala Berang di daerah Hulu Terengganu, Terengganu. Empat stesen telah dibentuk di kawasan tersebut di mana setiap stesen kemudiannya dibahagikan kepada bahagian 1 dan 2. Persampelan pertama dianggap sebagai model sebelum gangguan dan persampelan dilakukan di semua substesen. Persampelan kedua dianggap sebagai tempoh dua bulan selepas gangguan dan persampelan dilakukan di substesen A2, B2, C2 dan D2. Persampelan terakhir ialah tempoh empat bulan selepas gangguan dan persampelan dilakukan di substesen A1, B1, C1 dan D1. Keputusan menunjukkan bahawa sesi persampelan pertama adalah sesi yang mempunyai tangkapan terbanyak dari segi bilangan ikan dan juga spesis manakala persampelan kedua pula adalah sebaliknya. Lima spesis yang terbanyak ialah *Rasbora sp.*, *Rasbora notura*, *Nemacheilus selangoricus*, *Systemus banksi* dan *Osteochilus waandersii*. Bilangan ikan jelas berkurang dalam tempoh dua bulan selepas gangguan. Namun begitu, selepas empat bulan bilangan dan spesis ikan semakin bertambah. Indeks Persamaan menunjukkan persamaan yang ketara antara persampelan pertama dan kedua, persampelan pertama dan ketiga dan juga yang amat ketara antara persampelan kedua dan ketiga. Melalui keputusan, adalah diketahui bahawa kelima-lima spesis ikan yang paling banyak bilangannya datang daripada famili yang sama iaitu Cyprinidae. Salah satu karakter famili ini ialah mobiliti yang tinggi yang menyumbang kepada rekolonisasi. Perbezaan musim antara tempoh persampelan juga didapati mempengaruhi tangkapan ikan. Persamaan yang tinggi antara tempoh persampelan juga menunjukkan komposisi spesis ikan pulih ke keadaan asal dalam tempoh yang singkat iaitu kurang dari dua bulan. Diharap kajian ini dapat membantu pengkaji-pengkaji menjangka kesan gangguan antropogenik terhadap bilangan populasi ikan serta kebolehan komposisi spesis ikan untuk pulih ke bentuk asal dalam jangka masa pendek dan seterusnya membantu dalam usaha pemuliharaan bukan sahaja untuk spesis ikan tetapi juga sungai secara amnya.